

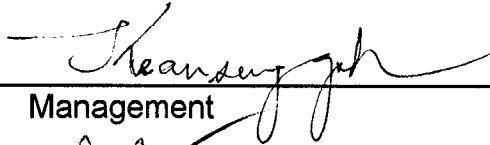
**STANDARD OPERATING PROCEDURE**  
**Soil Water Content Determination**


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**KEY WORDS-**

Soil; gravimetric method; moisture; water content

**APPROVALS**

APPROVED BY:  DATE: 3/9/99  
Management

APPROVED BY:  DATE: 2/23/99  
EHAP Senior Scientist

APPROVED BY:  DATE: 2/23/99  
EHAP Quality Assurance Officer

PREPARED BY: Cindy Garretson DATE: 2/19/99

Environmental Hazards Assessment Program (EHAP) organization and personnel such as management, senior scientist, quality assurance officer, project leader, etc. are defined and discussed in SOP ADMN002.

## **STANDARD OPERATING PROCEDURE**

### **Soil Water Content Determination**

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#### **1.0 INTRODUCTION**

##### **1.1 Purpose**

This SOP defines the method for the determination of the water content of a soil expressed as a percent of the oven-dry mass of the sample. A gravimetric method is used in which a soil sample is dried at 105°C to a constant weight. The dry weight of the soil is used as the divisor in the calculation because it expresses the absolute quantity of soil present.

#### **2.0 EQUIPMENT**

**2.1** Drying Oven (105°C)

**2.2** 1/2 pint wide mouth mason jars

**2.3** Samples accompanied by EHAP Soil Analysis Data Sheets (see attached)

**2.4** Balance (accurate to 0.1g)

#### **3.0 PROCEDURE**

**3.1** Weigh the empty sample jars (without lids) and record the weight in the tare weight column of the EHAP Soil Analysis Data Sheet.

**3.2** After placing the soil sample in the jars weigh the jars (without lids) and record the weight in the wet weight column on the Soil Analysis Data Sheet .

**3.3** Cap the jars and store at room temperature until ready to proceed.

**3.4** Remove lids from sample jars and place in 105°C oven and dry for 24 hours or until weight becomes constant.

**3.5** Remove from oven, replace lids and let cool.

**3.6** Remove lids and weigh. Record weight on Soil Analysis Data Sheet in the soil dry weight column.

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#### **4.0 CALCULATION**

$$\text{Water content (\%)} = (M_w - M_d) / M_d \times 100$$

$M_w$  = Mass of wet soil sample ( wet weight - tare weight ) (grams)

$M_d$  = Mass of dry soil sample ( dry weight - tare weight ) (grams)

#### **5.0 REFERENCE**

Hausenbuiller, R.L., Soil Science Principles and Practice, page 90, 4th printing 1975,  
Wm. C. Brown Co., Dubuque, Iowa

STUDY #:

## SOIL ANALYSIS DATA SHEET

### % MOISTURE AND BULK DENSITY

[illegible]

**CHECK-IN :**

DATE RECEIVED: \_\_\_\_\_

CHECKED-IN BY:

STORAGE LOCATION:

CHECK-OUT:

DATE DELIVERED:

CHECKED-OUT BY:

LABORATORY:

DATE ANALYZED:

DATE DISPOSED:

REMARKS:

DATE COLLECTED	SAMPLE TYPE	CONTAINER TYPE	ANALYSIS TYPE	CHEMICAL ANALYSIS	COMMENTS
	SOIL	1/2 PINT JAR	M B		